

Notes from discussion with Wally Gwynn of UGS about US Magnesium's concentrating and refining operations. February 26, 2009

1. After going through the series of evaporation ponds, brine is pumped into a circular, segmented pond near the plant. This pond is about 20 feet deep.
2. Desulfate (Add CaCl_2 , CaSO_4 drops out)
3. Boron removed
4. Spray dryers—series of three. The end product is powdered MgCl_2 .
5. Reactor—Melt carbon anodes. Chlorine gas is added, possibly also iron, which eliminates MgO .
6. Electrolytic cells. Solid magnesium and chlorine gas are the products. The chlorine gas is removed with scrubbers, and it is either recycled back into the process or sold.
7. The metal is then further refined, alloyed, and cast in ingots.

After hearing our definition of mining operation, Wally said he thought the line between primary and secondary processing should be drawn between steps 5 and 6 (possibly between 4 and 5).

There may be up to 25% LiCl in the waste.

